

Claims

- 1 /. A bone implant comprising:
- 2 (a) a core having a first end wall, a second end wall and defining a
- 3 centreline extending centrally of and between said end walls, and a
- 4 circumferential side wall portion parallel and extending between said
- 5 end walls;
- 6 (b) at least two axially elongated projections,
- 7 (i) extending from and along said core,
- 8 (ii) being disposed at a uniform circumferential spacing from
- 9 each other about the centreline,
- 10 (iii) having a rounded contour when viewed in axial direction
- 11 of the core;
- 12 (c) said core and said projections being dimensioned to contact inner wall
- 13 sections of a socket formed in a bone and having a predetermined size
- 14 and configuration compatible with that of the implant, when the
- 15 implant has been tapped into the socket.

- 1 2. The bone implant of claim 1, comprising four axially elongated projections,
- 2 said projections
- 3 (i) all extending from said circumferential side wall and along said
- 4 core, and
- 5 (ii) being disposed at a generally 90° circumferential spacing from
- 6 each other about said centreline.

- 1 3. The bone implant of claim 1, further comprising at least two elongated
- 2 stems extending from a location at the second end wall of said core and having a
- 3 free end disposed beyond said second end wall, each stem defining a stem axis.

- 1 4. The bone implant of claim 3, wherein a part of each elongated stem has a
- 2 radially outer portion which forms an extension of one of said projections.

1 5. The bone implant of claim 1, wherein each projection is formed by a plurality
2 of fins disposed in row parallel with said centreline, the fins being inclined in a
3 direction toward the centreline and the second end wall, whereby the tapping of the
4 implant into an associated socket is facilitated and the withdrawal thereof from the
5 socket is impeded by back biting orientation of the fins.

1 6. The bone implant of claim 3, wherein at least a part of at least one of the
2 elongated stems includes a plurality of fins inclined in a direction toward the axis
3 and the free end of the respective stem whereby the tapping of the implant into the
4 socket is facilitated and the withdrawal thereof from the socket is impeded by back
5 biting orientation of the fins.

1 7. The bone implant of claim 1, wherein said circumferential side wall is
2 generally circular in a cross-section perpendicular to said centreline.

1 8. The bone implant of claim 1, wherein said second end wall of the core has
2 the shape of a cavity symmetrical according to said centreline.

1 9. The bone implant of claim 8, wherein the shape of the cavity is concave.

1 10. A bone implant comprising:

- 2 (a) a core having a first end wall, a second end wall and defining a
3 centreline extending centrally of and between said end walls, and a
4 circumferential side wall portion extending between said end walls and
5 parallel with said centreline;
6 (b) at least two axially elongated stems,
7 (i) projecting from said second end of the core at diametrically
8 opposed locations, each location being disposed near a periphery
9 of the second end wall;

- 10 (ii) having a rounded contour when viewed in the direction of
11 elongation of the respective stem;
12 (c) said core and said stems being configured and dimensioned to contact
13 wall sections of a socket formed in a bone and having a predetermined
14 size and configuration compatible with that of the implant.

1 11. A bone implant of claim 10, wherein both said stems extend in a direction
2 generally parallel with said centreline of the core.

1 12. A bone implant of claim 10, wherein said stems are integrally formed with
2 said core.

1 13. The bone implant of claim 10, wherein the core is generally cylindrical.

1 14. The bone implant of claim 10, wherein the core has the general shape of a
2 rectangular prism.

1 15. The bone implant of claim 10, wherein at least one of the stems is distinct
2 from said core and is adapted to be fixedly secured to the core to project from said
3 second end wall in a direction divergent from said centreline.

1 16. The bone implant of claim 10, wherein said core comprises a threaded bore
2 extending between said first and second end in a direction divergent from the
3 centreline, at least one of said elongated stems being threadably securable to the
4 core at said threaded bore to project from the core at said direction divergent from
5 said centreline.

1 17. The bone implant of claim 10, wherein said second end wall of the core has
2 the shape of a cavity symmetrical about said centreline.

1 18. The bone implant of claim 17, wherein the cavity is concave.

1 19. Template means for forming an implant receiving socket from a bore pre-
2 formed in a bone, said template means comprising:

3 (a) a sleeve having an axis, a first end, a second end, an inner wall and an
4 outer wall, an outer circumference of the sleeve corresponding in shape
5 and in size to the circumference of an associated bore pre-formed in the
6 bone;

7 (b) an axially elongated first channel and an axially elongated second
8 channel, each formed in the outer wall of the sleeve, having a
9 concavely rounded cross-section and being disposed at a generally
10 uniform spacing from each other about said axis.

1 20. The template means of claim 19, further comprising a generally cylindric
2 locking pin discrete from the sleeve and compatible with the radius of one of said
3 grooves.

1 21. The template means of claim 19, further comprising a third channel and a
2 fourth channel, all said channels being formed in the outer wall of the sleeve at a
3 spacing from one another of about 90° about said axis, each channel having a
4 generally semi-circular cross-section.

1 22. The template means of claim 19, further comprising a handle disposed at
2 said first end of the sleeve between two adjacent channels and projecting radially
3 away from the sleeve to facilitate manipulation of the sleeve.

1 23. The template means of claim 19, wherein the channels extend full length of
2 the sleeve, from said first end to said second end thereof.

1 24. The template means of claim 20, wherein the locking pin is a tubular sleeve.

1 25. The template means of claim 19, wherein the second end of the sleeve is
2 concavely rounded.

1 26. Template means for forming an implant receiving socket from a cylindric
2 bore pre-formed in a bone, said template means including:
3 (a) a core comprising an axis, a first end, a second end, an outer wall, an
4 outer circumference of the core corresponding in shape and in size to
5 the circumference of an associated bore pre-formed in the bone;
6 (b) at least two axially elongated channels comprising a first channel and a
7 second channel, each channel formed in the core and extending from
8 said first end to said second end in a direction parallel with said axis,
9 having a cylindric cross-section and disposed near the outer
10 circumference of said first and second ends at a generally uniform
11 spacing from each other about said axis.

1 27. The template means of claim 26, further comprising a generally cylindric
2 locking pin discrete from the sleeve and compatible with the radius of at least one of
3 said channels.

1 28. The template means of claim 27, wherein the locking pin is a tubular sleeve.

1 29. The template means of claim 26, wherein said core comprises a third and a
2 fourth axially elongated channel, said first, second third and fourth channels being
3 disposed at a generally 90° from one another about said axis.

1 30. Template means for forming an implant receiving socket from a bore pre-
2 formed in a bone, said template means comprising:
3 (a) a core having a centreline, a first end, a second end and a
4 circumferential wall extending between the first and second end,
5 parallel with said centreline, said circumferential wall corresponding in
6 the circumferential shape and size to the pre-formed bore;

(b) an axially elongated first channel, an axially elongated second channel and an axially elongated third channel, each formed in the core and extending from said first end to said second end in a direction parallel with said centreline, each channel having a cylindric cross-section and being disposed near the periphery of said first and second ends, said channels being disposed at a uniform spacing of about 120° from one another about said axis;

(c) a generally cylindric locking pin discrete from the core and compatible with the diameter of one of said channels.

31. The template means of claim 26, further comprising a handle projecting radially away from the core at said first end of the core, between said two channels.

32. The template means of claim 30, further comprising a handle projecting radially away from the core at said first end of the core, between two adjacent channels.

33. Template means for forming, from a pre-formed bore in a bone, a socket for receiving an implant, said template means comprising:

(a) a first template and a discrete second template;

(b) said first template including a first core and said second template including a second core, each said core having:

(i) a circumferential part shaped and dimensioned to correspond to the shape and size of a circumferential part of the pre-formed bore,

(ii) a first end and an opposed second end,

(iii) said first end being disposed proximal to an opening of said bore and said second end being disposed proximal to a bottom of said pre-drilled pore when the template is located in the bore; and

(iv) a centreline extending between centers of the respective first and second end;

- 15 (c) said first core including an axially oriented drill guide channel extending
16 from the first end to the second end, said guide channel being parallel
17 with said centreline, having a predetermined diameter and being offset
18 from the centreline of the first core a predetermined offset distance;
19 and
20 (d) said second core including a straight, oblique drill guide channel
21 extending from the first end to the second end of the second core, said
22 oblique channel having an inlet end at the first end of the second core,
23 and an outlet end at the second end of the second core, the inlet end
24 being offset to one side of said centreline, the outlet end being offset
25 to an opposite side of said centreline, whereby the oblique drill guide
26 channel is capable of guiding a drill to provide an anchor bore at said
27 second end, which anchor bore is divergent from the centreline of the
28 respective pre-drilled bore;
29 (e) said second core being integrally formed with a locking stem projecting
30 from the second end thereof at a location offset relative said centreline
31 to a location diametrically opposite from said outlet end of the oblique
32 channel, said locking stem extending parallel with the centreline of the
33 second core and offset from the centreline of the second core by a
34 distance corresponding to said predetermined offset distance, the
35 diameter of said locking stem corresponding to said predetermined
36 diameter of the guide channel of said first core.

1 34. A drill bit for use in forming a socket for a bone implant, said drill bit
2 comprising, in combination:

- 3 (a) a shank having a root end provided with a fitting for securement of the
4 bit to a drill;
5 (b) a cylindric stem having a first predetermined length and diameter and
6 being coaxial with the shank, the stem defining a free end portion of
7 the bit and terminating in a rounded tip;

8 (c) a pair of radially projecting, opposed cutting blades disposed between
9 the shank and the stem, the shape of said blades being symmetrical
10 about the axis of the stem, each cutting blade having:

- 11 (i) an arcuately rounded cutting edge extending in an oblique
12 direction radially away from the stem and axially toward
13 said tip;
14 (ii) a side edge parallel with said axis and adjoining the cutting
15 edge at a first corner disposed axially proximate to said
16 tip, at a radially outside end of the cutting edge; and
17 (iii) a rear edge extending from the shank and adjoining said
18 side edge at a second corner disposed axially remote from
19 said tip.

1 35. A drill bit for use in forming a socket for a bone implant, said drill bit
2 comprising, in combination:

- 3 (a) a shank having a root end provided with a fitting for securement of the
4 bit to a drill;
5 (b) a cylindric stem coaxial with the shank and having a predetermined
6 length and diameter, the stem defining a free end portion of the bit and
7 terminating in a rounded tip;
8 (c) a pair of radially projecting, opposed cutting blades disposed between
9 the shank and the stem, the shape of said blades being symmetrical
10 about the axis of the stem, each cutting blade having:
11 (i) an arcuately rounded first cutting edge extending in an
12 oblique direction radially away from the stem and axially
13 toward said tip;
14 (ii) a side edge parallel with said axis and adjoining the cutting
15 edge at a first corner disposed axially proximate to said
16 tip, at a radially outside end of the cutting edge;

- 17 (iii) a second axially and radially outwardly directed cutting
18 edge adjoining the side edge at an obtuse angled second
19 corner axially remote from the tip;
20 (iv) a rear edge extending from the shank and adjoining said
21 second cutting edge at a third corner remote from said
22 second corner.